

of pores having a pore diameter of 50 nm or larger determined by the mercury intrusion porosimetry method is 0.32 - 1.1 cm³/g.

2. (Amended) A hydrorefining catalyst according to claim 1, wherein the pore volume determined by the mercury intrusion porosimetry method is 0.87 cm³/g or greater.

4. (Amended) A hydrorefining catalyst according to claim 1, wherein a pore volume of pores with a pore diameter of not less than 1,000 nm measured by the mercury intrusion porosimetry method is not more than 0.2 cm³/g.

5. (Amended) A hydrorefining catalyst according to claim 1, wherein bulk density is 0.52 g/cm³ or less.

6. (Amended) A hydrorefining catalyst according to Claim 1, wherein the catalyst comprises 2 to 6 wt% molybdenum and 0.5 to 2 wt% nickel or cobalt as the hydrogenation active metal component.

9. (Amended) A hydrorefining catalyst according to claim 1, wherein an effective amount of metal deposition is 70 g or more per 100 g of fresh catalyst.

supported
↓ *lack of antecedent basis.*

12. (Amended) A method of producing a hydrorefining catalyst comprising a hydrogenation active metal, comprising the steps of:

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 kneading a porous starting powder whose main component is γ -alumina and which has a pore volume of $0.75 \text{ cm}^3/\text{g}$ or greater and a mean particle diameter of 10 to $200 \mu\text{m}$ to prepare a kneaded product; molding and calcining said kneaded product; and supporting the active metal component on the kneaded product or on the kneaded product after calcining.

resin
 Please add the following new claims.

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 --Claim 15. (New) A method of demetallizing or deasphaltizing a heavy oil, comprising contacting said heavy oil with a hydrotreating catalyst comprising a hydrogenation active metal component supported on a refractory porous carrier, ^{wherein} having a median pore diameter determined by the nitrogen adsorption method of 8 to 20 nm, a pore volume determined by the nitrogen adsorption method of $0.56 \text{ cm}^3/\text{g}$ or greater, with a pore volume of $0.32 \text{ cm}^3/\text{g}$ or greater for pores having a pore diameter of 50 nm or larger as determined by the mercury intrusion porosimetry method.--

--Claim 16. (New) A method of demetallizing a heavy oil according to claim 15, comprising contacting said heavy oil with a hydrotreating catalyst comprising a hydrogenation active metal component supported on a refractory porous carrier, having a median pore diameter determined by the nitrogen adsorption method of 8 to

20 nm, a pore volume determined by the nitrogen adsorption method of 0.56 cm³/g or greater, with a pore volume of 0.32 cm³/g or greater for pores having a pore diameter of 50 nm or larger as determined by the mercury intrusion porosimetry method, wherein the heavy oil has 45 ppm by weight or more of nickel or vanadium with respect to metal weight.--

BS --Claim 17. (New) A method of deasphaltizing a heavy oil according to claim 15(a) comprising contacting said heavy oil with a hydrotreating catalyst comprising a hydrogenation active metal component supported on a refractory porous carrier, having a median pore diameter determined by the nitrogen adsorption method of 8 to 20 nm, a pore volume determined by the nitrogen adsorption method of 0.56 cm³/g or greater, with a pore volume of 0.32 cm³/g or greater for pores having a pore diameter of 50 nm or larger as determined by the mercury intrusion porosimetry method, wherein the heavy oil contains 3% or more asphaltene.--

REMARKS

Status of the claims:

With the above amendments, claims 1, 2, 4-6, 9, and 12 have been amended and claims 15-17 have been added. Claims 1-17 are pending and ready for further action on the merits.